Overcoming the Last Mile - An Agri-MSME Perspective

Michael Keenan, Luc Christiaensen and Christine Mwangi

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Last mile agents to the rescue?

Farmers face multiple constraints (Suri and Udry, 2022)	• Knowledge, access to ag inputs, services, and output markets; finance, risk management → low productivity; bundles needed
Agri-MSMEs fail to respond	• Production is seasonal, of low quality, and uncertain; farmers are dispersed → high transaction costs, limited economies of scale → missing/imperfect markets
From supply to demand (De Janvry & Sadoulet, 2021)	• From farm support through extension (public) to ag MSME support (private sector) through iVCD (platforms, producer organizations, derisking)
Last mile agents and youth employment (Pracht and Ricker-Gilbert, 2024)	• Contract farming limited (staples?). Support private last mile intermediaries to link farmers to markets (inputs, aggregation, services) (brokers/shops) • Generating employment for rural youth in agrifood sector

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STUDY OBJECTIVES

Dynamic Evolution of Agri –MSMEs	• Conduct (performance, drop out) • Structure (concentration, scope)
Correlates of performance and evolution	• Agri MSMEs features • Economic environment and program design • Rainfall shocks
Business development and entreneurship training	• Effect on business performance indicators • Effect on good business practice adoption

Last mile agent potential through agri-MSME lens

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FARM SERVICE CENTERS (FTMA)

The Farm to Market Alliance (FtMA) aims to **improve smallholder farmer productivity and incomes**

Farmer Service Centres (FSCs) to provide last mile access to: e**xtension, inputs, ag services, finance, markets, and post harvest solutions**

FSCs can be:

1) Physical shops
2) Mobile agents

Income through **direct sales** and **commissions** from market linkages

Coaches from the Cereal Growers Association (CGA)

Three interventions:

1) Coach FSCs
2) connect to svc providers/buyers
3) entrepreneurship training

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BUSINESS DEVELOPMENT AND ENTREPRENEURSHIP COACHING

15-week long on-line course

At the end of each topic, FSCs do a quiz

Topics covered in BDEC, KUZA:

- Mindset matters
- Goal setting
- Exploring business potential
- Starting my business
- Understanding my market
- Marketing my business
- Developing my business plan
- Keeping my daily records
- Managing my income and expenses
- Managing my cashflow and credit
- Managing my inventory
- Managing quality and service
- Measuring my business success
- Growing my business

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Data

Self reported transactions: 2021 (669 observations), 2022 (825), 2023 (995)

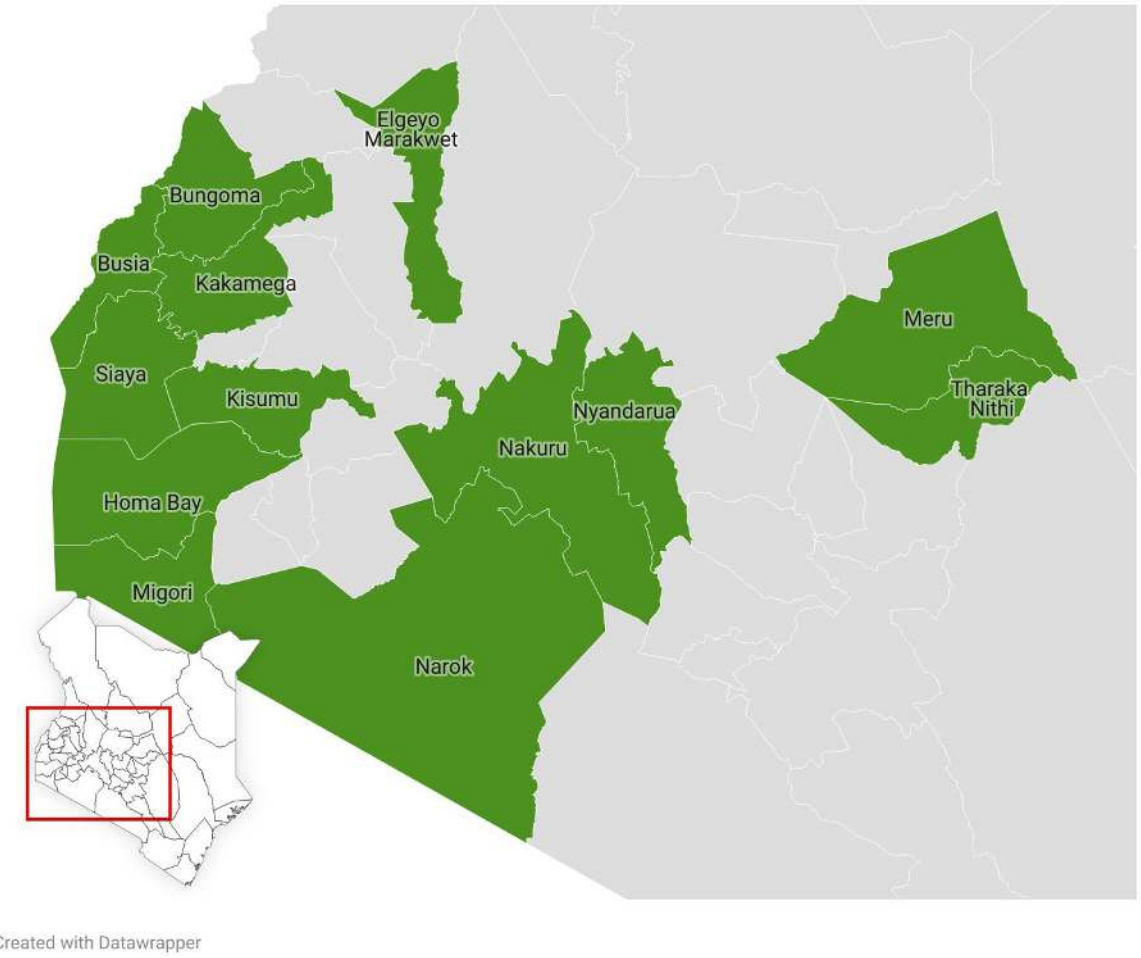
300 FSC phone surveys of BDEC participants (RCT) (150 T, 150 C)

Kenya geospatial data (nighttime light, rainfall, road density, AEZ) s.

Qualitative interviews with 16 FSCs

– 2 counties (stratified, random)

FSCs work in 13 counties



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FSCs features and activities

Socio-economic – non-youth, emergent farmers	• ~80% non-youth • 55% male; 45% female • often medium to larger farmers
Value chain – staple focused	• Cereals: 50% of turnover • Pulses/legumes; 23% • Roots & tubers: 25%
Transaction volume – sizeable, limited profit	• turnover:16,692US$ • commission (gross profit): 513US$
Activities – aggregation (profit); inputs (margins)	• 2.1 activities on average • Aggreg highest turnover (69%); inputs and compl services higher profit margins
Market concentration - top 20% drive activity	• top 20% responsible for 77% of turnover • Top 20% more diversified (70% full bundle)

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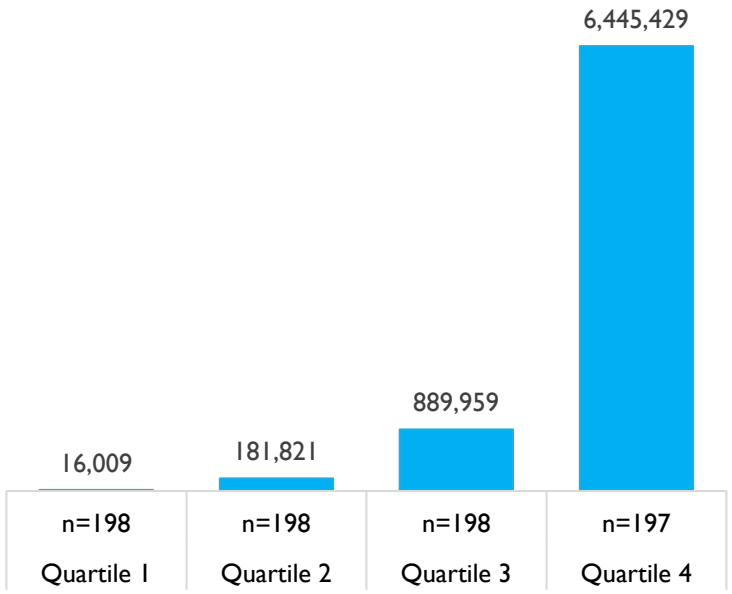
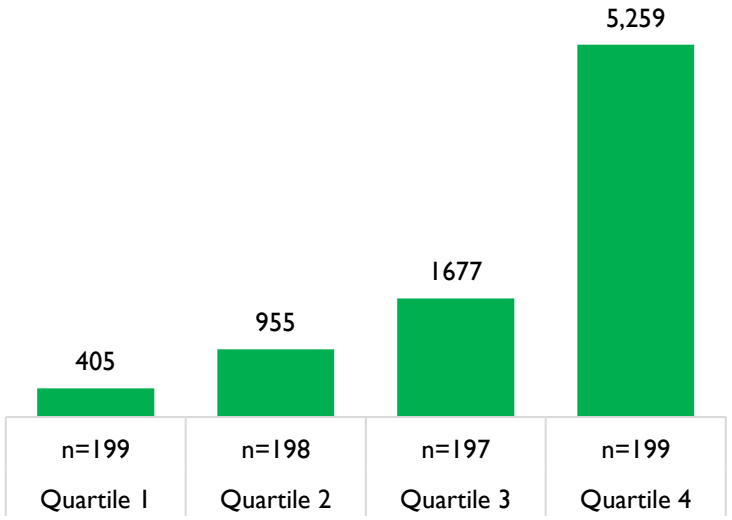
Top 25% of FSCs drive program performance

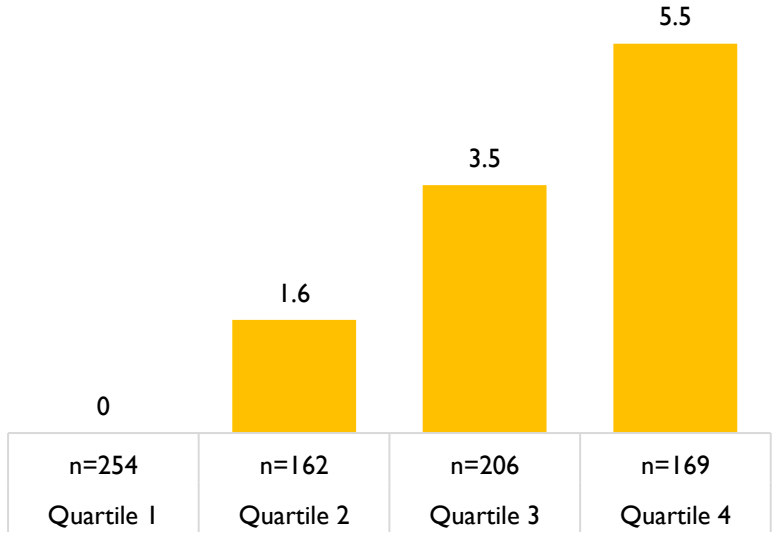
Mean turnover in 2022 (KES)



Annual average number of farmers served



Average number of CSA practices taught to farmers



Authors' Calculations based on 2022 FtMA Transaction Data

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Dynamics 1: Turnover increases with experience; lower drop out than typical Kenyan agri-MSME

	1 Year	2 Years	3 Years	4 Years
Average Turnover after (US$)	12,991	20,061	22,218	29,644
% FSCs dropped out (%) after	24%	23%	8%	19%
Cumulative agri MSME failure rate Kenya (KNBS, 2016)	38%	NA	70%	NA

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Dynamics II: From low threshold input trading on commission to more capital-intensive aggregation & mechanization

FSC participation (%)	1st year	2nd year	3rd year	4th year	5th year
Input	85	86	87	84	90
Aggregation	31	45*	43	47	52
Mechanization	36	39	47	53	60
Finance	10	12	13	15	15
Spraying	26	30	32	27	41*
Activity Count	**2.32**	**2.68*** **	**2.8**	**2.88**	**3.23** **

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Female and youth operators tend to perform better

Lasting FSCs have rising turnover/ commission (35 & 24%/yr resp.)

	(1)	(2)	(3)
	Log Total Turnover	Log Total Commission	Drop Out = 1
Female = 1	0.287**	0.163	-0.00330
	(0.133)	(0.124)	(0.0166)
Youth = 1	0.343	0.328*	-0.0395*
	(0.211)	(0.179)	(0.0215)
Female # Youth	-0.375	-0.153	-0.00177
	(0.268)	(0.267)	(0.0387)
Years of FSC Experience	0.349***	0.240***	-0.0129
	(0.0553)	(0.0636)	(0.00800)
Number of Activities	3.262***	3.070***	-0.0609*
	(0.236)	(0.216)	(0.0339)
Number of Activities Squared	-0.333***	-0.316***	0.0112*
	(0.0382)	(0.0351)	(0.00622)
Log Ward Turnover	-0.0189	-0.0106	-0.00128
	(0.0136)	(0.0130)	(0.00167)
Log Primary Road Length (km)	0.0370**	0.0371**	-0.00225
	(0.0163)	(0.0172)	(0.00206)
Log Secondary Road Length (km)	0.00707	0.0204	-0.00182
	(0.0165)	(0.0149)	(0.00170)

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Greater FSC growth potential and diversification in less developed areas

When adding FSCs, competition when many FSCs; coopetition within wards

FSCs sensitive to weather shocks

Ward level	Turnover (log)	Top 20% Performers	Drop Out	# Activities
Log Nighttime Lights (Radiance)				
Within effects	-1.49	-0.33	1.858**	-3.366***
Between effect	-1.516***	-0.207***	0.149*	-0.717***
Number of FSCs				
Within	0.02	0.00767**	0.0359**	-0.0444***
Between	-0.0558*	0.00	0.00737*	-0.01
Severe or Extreme Weather (= 1)				
Within	-0.382***	-0.04	0.114**	-0.190*
Between	0.18	-0.03	0.0972*	-0.22

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BDEC TRAINING EFFECT - ESTIMATION

Approach 1: Actual Treatment vs. Actual Control

Compares FSCs who are treated and those who are not.

Uses control variables to reduce self-selection bias.

Less 'pure' than Approach 2 because self-selection bias is not completely accounted for.

Approach 2: Assigned Treatment vs. Assigned Control

Compares FSCs *assigned* to treatment group to FSCs *assigned* to control group.

Removes self-selection bias.

But, impacts are underestimated due to contamination.

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TRAINED FSCS HAVE MORE EMPLOYEES, SERVE MORE CUSTOMERS, AND OPERATE IN MORE VALUE CHAINS; NOT IN ITT

	Total number of business activities	Log total temporary employee man days	Log total customers served during long rains	Total value chains an FSC is working in
BDEC training (Approach 1)	0.540**	0.588*	0.293*	0.588*
	(0.226)	(0.303)	(0.162)	(0.344)
Controls	Yes	Yes	Yes	Yes
Assignment group (Approach 2)	0.199	0.0695	0.006	0.344
	(0.214)	(0.264)	(0.135)	(0.316)
Observations	258	258	258	258

Marginal effects; Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Undertook Kuza BDEC indicates FSC undertook BDEC regardless of assignment, while assignment group gives the random assignment of an FSC. The top panel shows the results for Approach 1, estimated by Equation 1, while the bottom panel shows the results for Approach 2, estimated by Equation 2.

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TRAINED FSCS HAVE A HIGHER TURNOVER (TOTAL BUSINESS REVENUE) BUT ALSO HAVE HIGHER BUSINESS COSTS, SIGNALING LARGER TOTAL BUSINESS; NOT CONFIRMED IN ITT.

	(1) Log Total annual business costs	(2) Log total annual business revenue	(3) Log total amount paid to temporary employees
Undertook Kuza BDEC training	0.817**	1.133***	0.640
	(0.346)	(0.410)	(0.664)
Controls	Yes	Yes	Yes
Actual assignment group	0.0633	0.320	-0.296
	(0.274)	(0.281)	(0.578)
Observations	258	258	258

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Undertook Kuza BDEC indicates FSC undertook BDEC regardless of assignment, while assignment group gives the random assignment of an FSC. The top panel shows the results for Approach 1, estimated by Equation 1, while the bottom panel shows the results for Approach 2, estimated by Equation 2.

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Concluding remarks

Last mile agent model can expand business	• Also around staples; mainly through aggregation • Especially in less developed areas • Drop outs less pronounced than normal
Top 20% drives dynamics	• Entry through input aggregation on commission • More capital intensive aggregation and complementary services later
Scope for expansion	• Presence of FSCs lowers average turnover and increases drop outs • Cooptetition from adding FSCs within wards (agents for top 20% who specializes)
Training may work	• Indications that business development and entrepreneurship can increase business activity, and profits, though more causal analysis needed.
Weather volatility	• FSCs remain sensitive to weather shocks, especially the smaller ones&

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